

CHAPTER 3

RESEARCH METHODOLOGY

1. Sensors and Modules Testing.

Testing on modules and sensors for this project are LoadCell weight sensor and module HX711 to strengthen the result reading of weight sensor. Module RTC to inform the time information. Module SD Card to store the data from SD Card in txt form.

2. Servo Motor and Sensor Placement Design.

This project uses Arduino UNO as mikrokontroler, Load Cell weight sensor, HX711 module, motor servo MGR995, RTC, module SD Card. Tomatoes are dropped from above automatically to measure the weight in gram. After the weight is measure, then the tomato is rotated three times to calculate the average number. Then the tomatoes are automatically sorted based on its weight.

3. Programming.

Develop the program to be uploaded in Arduino UNO using Arduino IDE to run the sensor, module and installed servo.

4. Store Data from Arduino into SD Card.

To send the data from Load Cell sensor and RTC from Arduino to SD Card module into SD Card in txt form. From the stored data in SD Card to determine the size of the tomato, from small, medium, or big.

5. Data Collecting.

Data collecting process of the weight in this project is using Load Cell sensor. Tomatoes that are used for data training are total 30 tomatoes and for data testing are 20 tomatoes. Each tomatoes then is measured 3 times to calculate the average value. The data then stored into SD Card.

6. Data Testing.

This Project tests the tomato quality based on the weight. This project also tests all of the sensors, modules and servo motors to properly work and to count the time of the device determine the tomato weight.

7. Data Analyze.

Data analyze of the tomato weight to be grouped into big size, medium size, and small size. The data are stored into SD Card and to be displayed on PHP website.

8. Final report.

Making the final report from this project with garnering all data acquired from early experiment until the end used to make the final report and also collecting the journal related to this project. The final report there are 6 chapters include the photos of the project. These project were also established any further developed by following described measures.

